Please add the following claims.

24. (New) The apparatus of claim 1 wherein the plasma system is a remote plasma system that is adapted to form a plasma upstream of the atmospheric pressure vapor deposition chamber, wherein the substrates are semiconductor substrates, wherein the atmospheric pressure vapor deposition chamber is an APCVD chamber, and wherein the apparatus further comprises a curing station coupled to the first and second atmospheric deposition stations.

A5

25. (New) The apparatus of claim 1 wherein the first atmospheric deposition station comprises a spin coating chamber, and wherein the apparatus further comprises an annealing chamber, a silylation chamber, and a curing chamber coupled to the first atmospheric deposition station and the second atmospheric deposition station.

REMARKS

This Amendment is responsive to the Office Action filed on October 28, 2002. A petition for a 1-month extension of time is attached so that the due date for response is extended to and including February 28, 2002.

Prior to this Amendment, claims 1-23 were pending. In this Amendment, claims 4 and 16-23 are canceled, claims 1, 5, 9, and 11 are amended, and dependent claims 24-25 are added so that claims 1-3, 5-15, and 24-25 are pending and subject to examination.

Claim 1 is amended to incorporate the limitation in canceled claim 4. Claim 5 is amended change the dependency of claim 5 to claim 1. Amended claims 1 and 5 correspond to previously submitted claims 4 and 5 so that the amendments to claims 1 and 5 do not raise a new issue requiring further search and/or substantially new issues for consideration. The amendments to claims 9 and 11 are editorial in nature and do not raise new issues requiring further search and/or consideration.

Support for new claims 24-25 can be found throughout the specification, claims, and drawings as originally filed. For example, support for new claims 24-25 can be

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found at the paragraph bridging pages 5-6 of the application, as well as in originally filed dependent claims 5-9. No new matter is added.

Claim rejections - 35 USC § 112

In the Office Action, claims 1-10 are rejected as indefinite, because claim 1 recites the limitation "the atmospheric deposition station" in lines 6-7. In response, this phrase has been amended to recite --the first atmospheric deposition station--. Withdrawal of the indefiniteness rejection is requested.

Claim rejections - 35 USC 102

On page 3 of the Office Action, claims 1-2 and 6-10 are rejected as anticipated in view of Yamada et al. (U.S. Patent No. 5,501,739). Claims 1, 3, and 6-10 are rejected as anticipated in view of Garriga et al. (U.S. Patent No. 6,451,118).

Each of the anticipation rejections is traversed. However, to expedite the prosecution of this application, claim 1 is amended to include the limitation in canceled dependent claim 4. Claim 4 was not rejected as anticipated by either Yamada et al. or Garriga et al., so withdrawal of the anticipation rejections is requested.

Claim rejections - 35 USC 103

On page 5 of the Office Action, claims 4, 11, and 14-15 are rejected as obvious over Yamada et al. and Hayashi et al. (U.S. Patent No. 5,578,130). In the Office Action, the Examiner states that Yamada et al. discloses an apparatus for processing semiconductor substrates, the apparatus comprising a first atmospheric deposition station and a second atmospheric deposition station. On page 5 of the Office Action, the Examiner admits that Yamada et al. fails to teach a plasma system associated with an atmospheric chemical vapor deposition chamber. The Office Action states that Hayashi et al. discloses a plasma system associated with an atmospheric chemical vapor deposition system "for the purpose [of] forming coatings for hardening or improving the

surface of plastic, glass, or an organic photo sensitive body, or for the prevention of reflection of a surface (column 1, rows 45-60)." The Office Action further states:

> It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plasma system associated with [an] atmospheric chemical vapor deposition system in Yamada et al. in order to form coatings for hardening or improving the surface of plastic, glass, or an organic photo sensitive body, or for the prevention of reflection of a surface as taught by Hayashi et al.

Applicants traverse the obviousness rejection.

The obviousness rejection is improper, because one of ordinary skill in the art would not have been led to modify the apparatus disclosed in Yamada et al. with the teachings in Hayashi et al. for the reasons provided by the Examiner. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). Yamada et al.'s apparatus is for forming a thin film to be used in a semiconductor device or a liquid crystal panel. According to Yamada et al., the apparatus is "particularly designed to improve yield." See column 1, lines 5-10 of Yamada et al. Yamada et al. states that it is an "object" of the invention to provide an apparatus that prevents the generation of dust on the surface of a film and the deterioration of the properties of the film. See column 2, lines 14-19 of Yamada et al. Thus, it is clear that Yamada et al. desires a highly pure apparatus so that, for example, functioning semiconductor devices can be produced.

The Examiner alleges that one would have modified Yamada et al.'s apparatus with a plasma system "to form coatings for hardening or improving the surface of plastic, glass, or an organic photo sensitive body, or for the prevention of reflection of a surface as taught by Hayashi et al." The Examiner cites column 1, lines 45-60 of Hayashi et al. These alleged reasons for modifying Yamada et al. are pertinent to coatings that do not require high purity, not coatings that require high purity like the coatings produced by the apparatus described in Yamada et al. Column 1, lines 41-60 of Hayashi et al. state:

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> Generally, even a trace amount of impurity contamination is not tolerated in the field of semiconductor technologies since the coatings must have high performance. High depreciation costs of equipment can be easily assigned to commercial products having high added values. For these reasons, these coatings have been fabricated by plasma chemical vapor deposition as described above. *On the other hand, where coatings are formed for hardening or improvement of surface of plastic, glass, or organic photosensitive body, or for prevention of reflection at such surface, very high purities are not required.* Rather, increased costs due to the usage of expensive equipment present problems. That is, the best compromise must be struck between performance and cost.
>
> Plasma CVD processes that need no evacuating apparatus are known. A plasma CVD which is applied to etching is described in Japanese Patent Application No. 286883 filed in 1990. In particular, a space is filled with a flowing gas consisting mainly of helium at a pressure close to atmospheric pressure. (emphasis added.)

Contrary to the Office Action, one would not have been led to modify Yamada et al.'s semiconductor processing apparatus with a plasma system associated with an atmospheric chemical vapor deposition system "to form coatings for hardening or improving the surface of plastic, glass, or an organic photo sensitive body, or for the prevention of reflection of a surface", since these reasons relate to forming coatings that do not require high purity. It is clear from the above-cited passage from Hayashi et al. that they do not relate to forming coatings that are highly pure (like those described in Yamada et al.). Put another way, one would not have been led to modify Yamada et al.'s apparatus, which requires high purity, for reasons that specifically relate to coatings that do not require high purity.

Moreover, there is no motivation to modify Yamada et al. with the teachings of Hayashi et al., because these references explicitly teach away from each other. It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 218 USPQ 769, 779 (Fed. Cir. 1983) (The claimed catalyst which contained both iron and an alkali metal was not suggested by the combination of a reference which taught the interchangeability of antimony and alkali metal with the same beneficial result, combined with a reference expressly excluding antimony from, and

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adding iron to, a catalyst.). MPEP § 2145. Hayashi et al. explicitly states that atmospheric plasma systems are problematic because they produce contamination. For example, Hayashi et al. states the following at column 2, lines 4-32:

> As described previously, the conventional coating formation process at reduced pressure is too expensive only for the hardening of the surface of plastic, glass, or organic photosensitive body or for formation of a coating. Therefore, more economical methods are being sought. A contemplated, economical coating formation method exploits an electric discharge at atmospheric pressure....
>
> Formation of a coating at atmospheric pressure poses three problems. The first problem is contamination with atmospheric components. Specifically, ions, radicals, and other matter are produced in the space in which an electric discharge is induced. When they are being transported to the surface of the substrate on which the coating is formed, they react with impurities in the atmosphere, especially oxygen, thus affecting the coating. Since the surface on which a coating is being formed is active, the impurities adhering to the surface such as oxygen will deteriorate the performance of the coating. (emphasis added.)

While Hayashi et al. explicitly states that apparatuses that use electric discharges at atmospheric pressure produce contamination, Yamada et al. explicitly wants to avoid contamination and desires high yields. If one were to modify the apparatus described in Yamada et al. with the teachings in Hayashi et al. as proposed by the Examiner, according to Hayashi et al., one would have produced more contamination and decreased yields (contrary to the stated objective of Yamada et al.). Accordingly, Yamada et al. and Hayashi et al. teach away from each other, and there is no motivation to modify Yamada et al. with Hayashi et al. in the manner suggested by the Examiner.

On page 5 of the Office Action, the Examiner states that claims 5 and 12 are obvious in view of Yamada et al., Hayashi et al., and in further view of Imahashi (U.S. Patent No. 5,337,362). On page 6 of the Office Action, claim 13 is rejected as being obvious over Yamada et al., Hayashi et al., and in further view of Ishida et al. (U.S. Patent No. 5,151,008).

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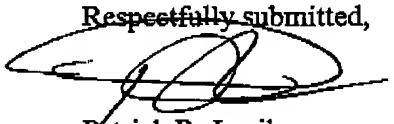
Each of these additional obviousness rejections is traversed. The additional citations of Imahashi and Ishida et al. do not cure the deficiency of the improper combination of Yamada et al. and Hayashi et al. as described above. Accordingly, withdrawal of the additional obviousness rejections is requested.

CONCLUSION

Applicants believe all claims now pending in this Application are in condition for allowance. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 4, and 16-23 are canceled.

1. (Amended) An apparatus for processing a substrate, the apparatus comprising:

(a) a first atmospheric deposition station;

(b) a second atmospheric deposition station comprising an atmospheric pressure vapor deposition chamber, wherein the first atmospheric deposition station and the second atmospheric deposition station are coupled together; and

(c) a substrate handling system adapted to transfer substrates between the first atmospheric deposition station and the second atmospheric deposition station, and

wherein a plasma system is associated with the atmospheric pressure vapor deposition chamber.

5. (Amended) The apparatus of claim [4] 1 wherein the plasma system is a remote plasma system that is adapted to form a plasma upstream of the atmospheric pressure vapor deposition chamber.

9. (Amended) The apparatus of claim 1 wherein the atmospheric pressure vapor deposition chamber is an atmospheric pressure chemical vapor deposition (APCVD) chamber.

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11. (Amended) An apparatus for processing semiconductor substrates, the apparatus comprising:

(a) an atmospheric chemical vapor deposition chamber;

(b) a plasma system associated with the atmospheric chemical vapor deposition chamber;

(c) a spin coating chamber coupled to the atmospheric chemical vapor deposition chamber;

(d) a curing station coupled to the atmospheric chemical vapor deposition chamber; and

(e) a substrate handling system adapted to transfer substrates between the atmospheric chemical vapor deposition chamber, the spin coating chamber, and the curing station.

The following new claims are added.

24. (New) The apparatus of claim 1 wherein the plasma system is a remote plasma system that is adapted to form a plasma upstream of the atmospheric pressure vapor deposition chamber, wherein the substrates are semiconductor substrates, wherein the atmospheric pressure vapor deposition chamber is an APCVD chamber, and wherein the apparatus further comprises a curing station coupled to the first and second atmospheric deposition stations.

25. (New) The apparatus of claim 1 wherein the first atmospheric deposition station comprises a spin coating chamber, and wherein the apparatus further comprises an annealing chamber, a silylation chamber, and a curing chamber coupled to the first atmospheric deposition station and the second atmospheric deposition station.

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